

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

1 Claims 1-4 (Cancelled)

1 5. (Previously Presented) A switching system for providing a signal in response to an
2 article which provides a magnetic field, the switching system comprising:

3 (a) a sensor for sensing the magnetic field of the magnetic article, said sensor for
4 generating a first signal voltage having a signal voltage level which is proportional to a
5 magnetic field having a first polarity and a second signal voltage having a signal voltage level
6 that is proportional to a magnetic field having a second different polarity;

7 (b) a threshold detection circuit coupled to the sensor to receive the first and second signal
8 voltages and to provide an output signal having a first value when said magnetic article is
9 within a predetermined distance of the sensor regardless of the polarity of the magnetic field;

10 and

11 (c) a bias circuit coupled to said threshold detection circuit for maintaining operating
12 signals in said threshold detection circuit within a predetermined range of operating signal
13 levels in response to changes in supply voltage and operating temperature.

1 6. (Original) The switching system of Claim 5 wherein:

2 said sensor is a magnetic-field-to-voltage transducer for generating a first signal voltage
3 having a signal voltage level which is proportional to a magnetic field having a first polarity
4 and a second signal voltage having a signal voltage level that is proportional to a magnetic
5 field having a second different polarity; and

6 said threshold detection circuit is coupled to said magnetic-field-to-voltage transducer to
7 receive the first and second signal voltages and to provide an output signal having a first value
8 when the article is within the predetermined distance of said magnetic-field-to-voltage
9 transducer regardless of the polarity of the magnetic field with respect to said magnetic-field-
10 to-voltage transducer.

1 7. (Original) The switching system of Claim 6 wherein:
2 said magnetic-field-to-voltage transducer is a Hall element circuit; and
3 said threshold detection circuit is a comparator coupled to said Hall element circuit.

1 8. (Original) The switching system of Claim 7 wherein said comparator is a window
2 comparator comprising first and second differential pair circuits, each of said first and second
3 differential pair circuits having an input terminal coupled to one of a pair of outputs from said
4 Hall element circuit and an output terminal coupled to an output terminal of said comparator.

1 9. (Original) The switching system of Claim 8 further comprising a filter and level shifter
2 circuit coupled between said Hall element circuit and said comparator.

1 10. (Original) The switching system of Claim 8 further comprising first and second output
2 amplifier stages, each of the output amplifier stages coupled between a respective one of the
3 output terminals of the first and second differential pair circuits and the output terminal of said
4 comparator.

1 11. (Original) The switching system of Claim 10 further comprising an output/buffer
2 amplifier stage having an input terminal coupled to the output terminal of each of said first and
3 second output amplifier stages and having an output terminal coupled to the output terminal of
4 said comparator.

1 Claims 12-20 (Cancelled)

1 21. (Previously Presented) A method of switching comprising the steps of:

2 (a) sensing a magnetic field provided by a magnetic article having a first pole and a second

3 pole wherein said magnetic article has first magnetic field polarity at the first pole and a second

4 different magnetic field polarity at the second pole;

5 (b) generating a sensor output signal having a signal level which is proportional to the

6 magnetic field sensed in step (a), wherein the sensor output signal has a first signal direction

7 when the sensed magnetic field has the first polarity and a second opposite signal direction

8 when the sensed magnetic field has the second different polarity;

9 (c) comparing the sensor output signal to one of first and second threshold signal levels;

10 and

11 (d) in response to the sensor output signal level reaching or exceeding the one of the first

12 and second threshold signal levels, providing an output signal having a first signal level

13 regardless of the direction of the sensor output signal;

14 (e) in response to the sensor output signal having a first signal level which is less than the

15 one of the first and second threshold signal levels, providing an output signal having a second

16 different signal level regardless of the direction of the sensor output signal; and

17 (f) in response to the output signal changing from the first signal level to the second

18 different signal level, changing a switch point of a threshold circuit from a first predetermined

19 threshold level to a second predetermined threshold level.

1 Claims 22-23 (Cancelled)

1 24. (Previously Presented) The method of Claim 21 wherein the absolute value of the first

2 predetermined threshold level is greater than the absolute value of the second predetermined

3 threshold level.

1 25. (Previously Presented) A switching system for providing a signal in response to an
2 article which provides a magnetic field, the switching system comprising:
3 (a) a sensor for sensing the magnetic field of the magnetic article, said sensor for generating
4 a first signal voltage having a signal voltage level which is proportional to a magnetic field
5 having a first polarity and a second signal voltage having a signal voltage level that is
6 proportional to a magnetic field having a second different polarity; and
7 (b) a threshold detection circuit coupled to the sensor to receive the first and second signal
8 voltages and responsive to a supply voltage to provide an output signal having a first value when
9 said magnetic article is within a predetermined distance of the sensor regardless of the polarity of
10 the magnetic field, said threshold detection circuit comprising a circuit for comparing said first
11 signal voltage to a first threshold level and for comparing said second signal voltage to a second
12 threshold level, wherein said first and second threshold levels are substantially constant in
13 response to variations in said supply voltage.

1 26. (Previously Presented) A switching system for providing a signal in response to an article
2 which provides a magnetic field, the switching system comprising:
3 (a) a sensor for sensing the magnetic field of the magnetic article, said sensor for generating
4 a first signal voltage having a signal voltage level which is proportional to a magnetic field
5 having a first polarity and a second signal voltage having a signal voltage level that is
6 proportional to a magnetic field having a second different polarity; and
7 (b) a threshold detection circuit coupled to the sensor to receive the first and second signal
8 voltages and responsive to a supply voltage to provide an output signal having a first value when
9 said magnetic article is within a predetermined distance of the sensor regardless of the polarity of
10 the magnetic field, said threshold detection circuit comprising a circuit for comparing said first
11 signal voltage to a first threshold level and for comparing said second signal voltage to a second
12 threshold level, wherein the first threshold level is changed to a third threshold level and the
13 second threshold level is changed to a fourth threshold level in response to the output signal
14 changing from the first value to a second value.